

# MORE THAN JUST A CPU

## CPZ-4800X Single Board Computer

NEW!  
AND FASTER  
THAN EVER.

### A HOST OF USES

As the most sophisticated, competitively priced Single Board Computer (SBC) in the S-100 market, the CPZ-4800X series is more than just a CPU. It will act as a sophisticated single board Personal Computer or as a master CPU in a master slave network. The CPZ-4800X can also be used as a single processor, multi-user/multi-tasking host, or as a CPU with high speed serial data link for local area networking.

In both 4 and 6 MHz versions, the CPZ-4800X is fast and versatile, but don't be deceived by clock rate alone—the CPZ-4800X provides many advantages for system architectures requiring high speed and high throughput processing. In fact, our 4 MHz CPZ-48004 with our memory mapped slaves is 37% faster than the competitors' 6 MHz master, I/O mapped slave combination. Our 6 MHz CPZ-48006 master is 106% faster.

That's because a powerful on-board Memory Management Unit (MMU) controls 24 bits of address for up to 16 MBytes of extended memory, equal to or better than any 16 bit CPU available today.

A 4-channel Direct Memory Access (DMA) controller provides data transfer rates over 300% faster than standard Z80™ block move rates. DMA transfers off-board memory directly, bypassing the CPU. No other S-100 SBC offers both MMU and DMA in combination. Significant increases in speed result.

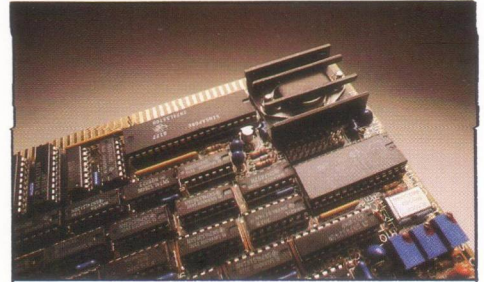
Vectored Priority Interrupt (VPI) allows the CPU to recognize and prioritize simultaneous service requests for up to 18 interrupt sources. VPI increases CPU efficiency and eliminates potential data loss due to simultaneous service requests, often a problem with standard "polled I/O" methods.

Turbo disk (RAM disk) allows any extended address RAM memory to emulate a disk, and is the fastest method of storing and retrieving data in the S100 market. Transfer rate in file accessing is 1 MByte/sec—vs—60KByte/sec floppy or .5 MByte/sec hard disk rates.

Peripheral interface through ICM's small, inexpensive personality boards allows extremely versatile interfacing and eliminates costly modifications to the CPU. New personality boards are constantly

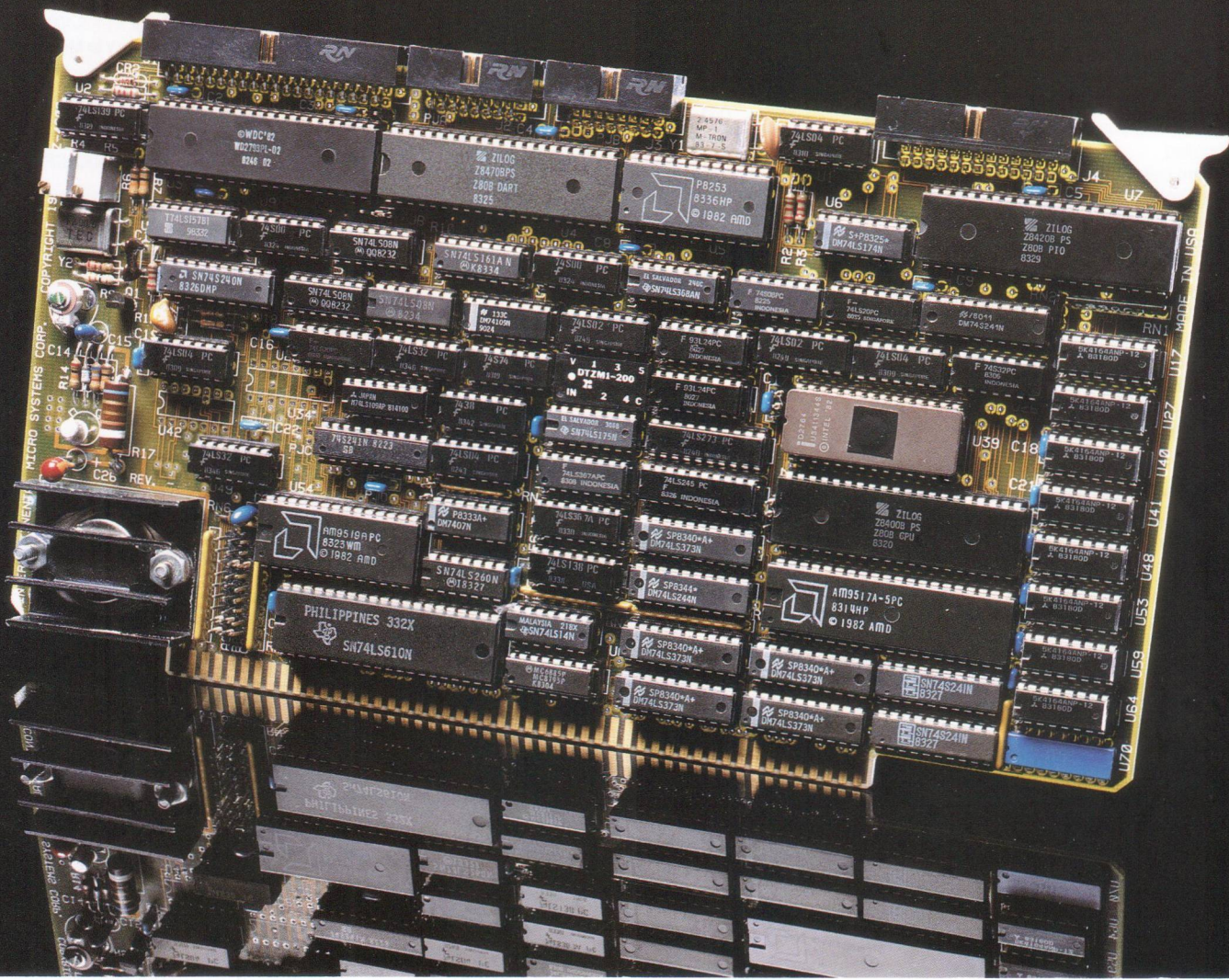
being developed as new peripherals are introduced into the market.

TurboDOS™, CP/M™, CP/M 86™ and MP/M™ compatible. TurboDOS is compatible with virtually all off-the-shelf CP/M application software. Since CP/M has been the standard 8-bit Operating System for a number of years, there are literally thousands of



applications software packages readily available and soon PC-DOS compatibility will provide even more available software.

Master/Slave Networking allows putting up to 1



master (CPZ 4800X) and 16 slaves (CPS-MX) in an S-100 bus. Up to 255 masters can be networked together for 4000 users with an ARCNET™ S-100 board. Each slave CPU can act independently of the master, so each user has a dedicated processor, making the network much faster than a shared processor multiuser system. Master/Slave networks are also very cost effective—all users can share common peripherals. Overall, savings of up to 65% can be realized by using a Master/Slave TurboDOS Network as opposed to a PC OMNINET™.

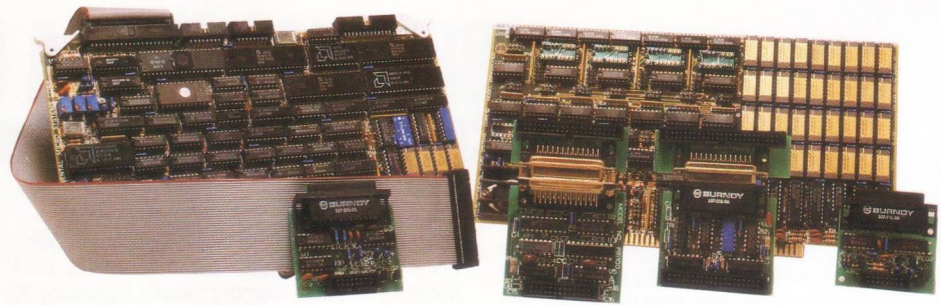
In short, the CPZ-48000 series is sophisticated and fast. The CPZ-48004 and CPZ-48006 offer more processing power and yet are some of the most competitively priced SBC's on the market.

### THERE'S MORE

- IEEE 696.1/D2 S-100 compliance. The CPZ-4800X will interface with most IEEE S-100 bus products on the market.
- RS232 communications and floppy controller Personality Boards included.
- 6 MHz Z80B, 4 MHz Z80A Operation.
- Floppy disk controller (FDC) with on-chip data separator. Single or double density. 8" and 5¼" in any combination. The choice is yours, up to 4 drives.
- Two synchronous or asynchronous serial I/O channels (SIO). One channel can be programmed in direct memory access (DMA), interrupt, or programmable I/O mode.
- Two parallel I/O channels (PIO). One channel is programmable in DMA, interrupt or programmable I/O mode.
- Four channel DMA controller
- 64K on-board RAM. Bank selection puts from 4K to 64K under software control.
- Memory management unit (MMU). Addresses up to 16 megabytes of system memory.
- Eighteen vectored priority interrupts are chained with serial and parallel I/O interrupts for use with Z-80 mode 2 interrupts.
- Provisions for 2K, 4K or 8K on-board EPROM. A boot up function and monitor in a 2K EPROM is supplied.
- Software selectable baud rates. Eliminates costly, complicated hardware modifications to change baud rates. Up to 800K BAUD in synchronous mode, 50K BAUD in asynchronous mode.
- IBM Bisync, HDLC, SDLC and other protocols. All are handled through a Z-80 SIO chip. Permits communication with micro's, mini's or mainframes.
- CP/M™, MP/M™ and TurboDOS™ operating systems available.
- Turbo-Disk® implementation included.
- DMA to extended memory.

#### INDEPENDENT COMPARISON OF S-100 SBC'S BY MICROSYSTEMS MAGAZINE

| FEATURES  | ICM               | TELETEK | SIERRA  | ADC     |
|---|-------------------|---------|---------|---------|
| Channels of DMA                                 | 4                 | 1       | 0       | 1       |
| Memory Management Unit (16 MByte)               | YES               | NO      | NO      | NO      |
| Interrupt Control                               | VECTORED PRIORITY | NO      | PIO I/O | PIO I/O |
| RAM Disk Software                               | YES               | NO      | NO      | NO      |
| Window Deselection                              | YES               | NO      | NO      | NO      |
| Peripheral Interface Through Personality Boards | YES               | NO      | NO      | YES     |



### HOW USING OUR WHOLE PRODUCT LINE WILL HELP YOU

The CPZ-4800X CPU, CPS-MX slaves, and 256KMB-100 memories from Intercontinental Micro Systems give you the perfect team for the most demanding of tasks—multi-user/ multi-tasking, RAM disk or single user functions.

## Specifications

Here it is in black and white. Have a look. Then give us a call. We'd love to help with your CPU or single board system applications.

#### MICROPROCESSOR

Clock rate... 6 MHz Z80B CPZ-48006 or 4 MHz CPZ-48004

#### BUS INTERFACE... IEEE 696. 1/D2 S100

#### SERIAL I/O CHANNELS

Synchronous Operation  
Baud Rate... Up to 800 K Baud  
Data Transfer... DMA, Interrupt or Programmed I/O

Asynchronous Operation  
Baud Rate... Up to 50K Baud  
Clock Rate... 1, 16, 32 or 64 Times Baud Rate  
Bits/Character... 5, 6, 7 or 8  
Stop Bits... 1, 1½ or 2  
Parity... Odd, Even or None  
Data Transfer... DMA, Interrupt or Programmed I/O  
I/O Interface... Through Personality Boards

#### PARALLEL I/O CHANNELS

Data Rate... Up to 300 KBytes/Sec  
Channel A Data Transfer... DMA, Interrupt or Programmed I/O  
Channel B Data Transfer... Interrupt or Programmed I/O  
Interface Signals... 16 Data Lines Plus 4 Handshaking Lines  
I/O Interface... Through Personality Boards

#### FLOPPY DISK CONTROLLER

Data Rate/8-Inch Single-Density... 250,000 Bits/Sec  
Data Rate/8-Inch Double-Density... 500,000 Bits/Sec  
Data Rates/5¼-inch Single-Density... 125,000 Bits/Sec  
Data Rate/5¼-inch Double-Density... 250,000 Bits/Sec  
Format... IBM 3740 or 512 x 16 Sectors  
Data Transfer... DMA, Interrupt or Programmed I/O  
I/O Interface... Through Personality Boards

#### INTERRUPT CONTROL

Number of channels... 18  
Priority... Rotating or Fixed  
Interrupt Modes... Z80 Mode 0, Mode 1 or Mode 2

#### REAL-TIME CLOCK

Operation... Software Polled or Interrupt Driven  
Range... 37.5 Hz to 1.2288 MHz

### WE'VE GOT PERSONALITY

So you've got a sophisticated Single Board System. It won't do you much good if you can't interface with peripherals. Intercontinental Micro has designed a full line of personality boards that allow you to interface with anything from floppies to hard disks including modems and printers. They're also small and won't take up any S100 Bus space.

#### 64K DYNAMIC RAM MEMORY

Bank Selection... May be bank selected in increments of 4K to 64K commencing at 4K boundaries; e.g., 8K of memory may be selected or deselected commencing at location C000 (hex) as defined by software  
Wait states... None  
Direct Memory Transfers... To/From SIO, PIO or FDC

#### DIRECT MEMORY ACCESS CONTROLLER

Channel 0... Cascade Mode for IEEE S-100 Bus or Used with Channel 1 in Memory to Memory Transfers  
Channel 1... Channel A of SIO Controller  
Channel 2... Floppy Disk Controller  
Channel 3... Channel A of PIO Controller

#### DIRECT EXTERNAL MEMORY TRANSFERS

To/From SIO, PIO or FDC

#### EPROM

Type... 2716 2K EPROM, 2732 4K EPROM or 2768 8K EPROM  
Wait States... None with CPZ-48004, 1 in CPZ-48006  
Function... Boot up and monitor

#### POWER REQUIREMENTS

Voltages... +8 VDC @ 2.2A (max)  
+16 VDC @ 0.2A (max)  
-16 VDC @ 0.15A (max)  
Power... 17W, 2A

#### OPERATING ENVIRONMENT

Temperature... 0 to 45 Degrees Celsius  
Relative Humidity... 0 to 95%

#### CONSTRUCTION

Circuit Board... Four Layer Glass Epoxy, Soldermask over Copper.  
All IC's in Sockets  
Connectors... Shrouded for Protection  
TESTING... Completely tested and 24 hour burned-in  
WARRANTY... One Year Warranty (Parts and Labor)



Z-80 is a Trademark of Zilog, Inc.  
CP/M, MP/M are Trademarks of Digital Research  
TURBODOS is a Trademark of Software 2000, Inc.  
Turbo-Disk is a Trademark of Intercontinental Micro Systems

4015 Leaverton Court, Anaheim, CA 92807, (714) 630-0964 Telex: 678401-TAB-IRIN